

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.**

In the Matter of:

Independent Panel Reviewing the Impact
of Hurricane Katrina on Communications
Networks

FURTHER COMMENTS OF M/A-COM, INC.

To improve disaster recovery and facilitate reliable, interoperable public safety communications in the near term, M/A-COM, Inc. (“M/A-COM”) urges the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks (“Panel”) to recommend that the FCC establish a consistent mutual aid channel policy across all bands that ensures assignment, construction, and use of the mutual aid channels.¹ The policy should further encourage the connection of mutual aid channels to Internet Protocol (“IP”)-capable Public Safety Answering Points (“PSAPs”) or, at the State’s discretion, to IP gateways so that they can be connected to an IP-based interoperability network. Mutual aid channels provide radio service to first responders outside the range of their local system or

¹ As discussed below, specified channels in the four main public safety bands—700 MHz, 800 MHz, VHF, and UHF—are allocated for the common use of state and local public safety agencies in emergency situations. These channels are often referred to as “mutual aid” or “interoperability” channels. For simplicity and to prevent confusion with the federal interoperability channels, we refer to these state and local channels as “mutual aid channels.”

when they need to communicate with users not on their local system.² Analog channels may be connected to an interoperability network through a gateway device with an IP port. Such gateways convert analog signals into packets that can traverse an IP network.

The FCC should likewise work with its partner the National Telecommunications and Information Administration (“NTIA”) to support an NTIA requirement for federal spectrum users to complete construction of Federal Law Enforcement and Incident Response Channels (collectively referred to as “federal interoperability channels”), and connect those channels to IP-capable federal dispatch centers or to IP gateways for connection to an IP-based interoperability network. Finally, the FCC should recommend to the Department of Homeland Security (“DHS”) during interagency consultations that DHS deploy such a national IP-based interoperability network to which statewide interoperability networks—including these mutual aid channels—and federal interoperability channels could connect.

Specifically, the Panel should recommend that the FCC:

- Require the States, as part of their Statewide Interoperable Communications Plans, to plan for and coordinate the assignment, construction, and use of all mutual aid channels within their jurisdiction, integrating all previously constructed mutual aid channels and becoming the licensee for mutual aid channels that have not yet been constructed;
- Modify existing public safety licenses and condition new licenses to require—subject to the receipt of grant funding—connection of mutual aid channels to an IP-capable PSAP or, at the State’s discretion, an independent IP gateway for operation over an IP-based interoperability network when available;
- Modify its equipment authorization procedures to require mutual aid tuning capability in all public safety equipment in the public safety band or bands for which the equipment is designed;

² *The Imminent Storm 2006: Vulnerable Emergency Communications in Eight Hurricane Prone States*, First Response Coalition at 16 (Apr. 2006).

- Encourage NTIA to develop grant procedures that permit funding for state and local public safety mutual aid channel construction, PSAP connection, and IP upgrade, pursuant to the FCC’s MOU with NTIA and Section 3006 of the Deficit Reduction Act.
- Encourage NTIA and the White House to require federal licensees to complete construction of federal interoperability channels identified in Part 4.3.16 of NTIA’s spectrum regulations (known as the “Redbook”) and connect them to IP-capable federal dispatch facilities or IP gateways that can connect to an IP-based interoperability network.

By making these recommendations, the Panel will best achieve its chartered mission of advising the FCC regarding “ways to improve disaster preparedness, network reliability, and communication among first responders.”³

I. BACKGROUND

M/A-COM is a leading technology developer and manufacturer of radio frequency, microwave, and millimeter wave semiconductors, components, and technologies serving the public safety and critical infrastructure, broadband, wireless data, aerospace, defense, and automotive market segments. M/A-COM has long been an industry leader in providing advanced two-way land mobile products and systems to the public safety community, including its recent introduction of cutting edge 6.25 kHz equivalent efficiency public safety solutions, poised for deployment at 700 MHz. M/A-COM is also a pioneer in the development of IP-based networks for private radio applications, and supplies industry-leading brands such as EDACS®, OpenSky®, NetworkFirst™, and ProVoice™. M/A-COM is part of Tyco Electronics, one of the world’s leading suppliers of electronic components.

As discussed more fully in M/A-COM’s initial written comments to this Panel, of

³ *The Charter of the FCC Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks* at ¶ B (Jan. 9, 2006) (“*Panel Charter*”).

those systems in the path of Hurricane Katrina, only M/A-COM systems continued to operate, while all others failed.⁴ Indeed, a recent U.S. House of Representatives Report noted that the “[o]ne interoperability success story from Mississippi was that [M/A-COM’s Enhanced Digital Access Communication System] was capable of linking with similar systems utilized by the Florida State Police and the Florida Fish & Wildlife Agency who arrived in Mississippi shortly after Katrina’s landfall.”⁵ According to Panel member Robert G. Bailey, Telecommunications Manager of the Harrison County Emergency Communications Commission, this communication system experienced “no degradation of quality,” thus passing “the ultimate test.”⁶ The successes of M/A-COM’s systems during Katrina and other hurricanes—notably the four that barraged Florida in 2004—provide insightful case studies that identify “ways to improve disaster preparedness, network reliability, and communications among first responders.”⁷

At the Panel’s second meeting on March 6, 2006, in Jackson, Mississippi, M/A-COM’s Dr. John Vaughan further explained the reliability and successes of M/A-COM’s

⁴ *Comments of M/A-COM, Inc. in the Matter of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, at 3-5 (filed Jan. 26, 2006) (“M/A-COM Comments”).

⁵ *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, U.S. House of Representatives, at 187 (rel. Feb. 15, 2006).

⁶ Mike Scott, “Radio System Weathers the Storm in Mississippi,” 9-1-1 Magazine, at 33 (Jan/Feb 2006).

⁷ *Panel Charter* at ¶ B; *see also Tusa Report*, appended to January 2006 M/A-COM Comments.

system in Harrison County during Katrina.⁸ He also explained how fully operational public safety mutual aid and federal interoperability channels connected to a federally-operated, IP-based national interoperability network for disaster relief could link various federal, state, and local first responder agencies, without regard to the type of radio or the frequency on which they operate. These comments further elaborate on steps to improve disaster communications among first responders, including those at the federal, state, tribal and local level.

II. THE FCC SHOULD REQUIRE PUBLIC SAFETY LICENSEES TO ACTIVATE MUTUAL AID CHANNELS

The FCC should establish consistent frequency coordination and assignment procedures for mutual aid channels in each of the main public safety bands—800 MHz, 700 MHz, UHF, and VHF. The FCC has allocated certain channels in each of these four bands for common public safety use. Such mutual aid (also called interoperability channels for certain public safety bands) channels differ from general use public safety channels in that the latter are dedicated to a specific public safety agency, while the former are set aside so that various public safety entities can coordinate and communicate with each other in emergency situations. While individual station licenses are required for mutual aid channels, the FCC provides blanket licenses for eligible public safety entities to operate mobile units in those bands.

When operational, these mutual aid channels are an important resource that can

⁸ *Presentation of Dr. John Vaughan to the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, March 6, 2006, available at <http://www.fcc.gov/eb/hkip/GSpeakers060306.html>.

enable public safety commanders to speak in one talk group. Thus, instead of creating a “wireless Tower of Babel,” with 100 police officers attempting to speak with 100 firefighters over 100 channels through 100 new radios, mutual aid channels provide a more effective near-term interoperability solution. A mutual aid channel would allow, for example, the city police chief, fire chief, state police chief, FEMA regional director, and county sheriff to communicate on one command-level call, then cascade the orders down to the first responder at the incident scene according to the agreed upon plan of action among the chiefs.

Despite the obvious benefit that these channels could provide, they are underutilized. A significant number are not yet constructed. The FCC should improve disaster preparedness and interoperable first responder communications first by consolidating its oversight of the various bands. Because the mutual aid channels varied in their historical development, channels in each major public safety band are managed differently. Regional Planning Commissions (“RPCs”), States, and/or frequency coordinators currently have varied oversight responsibilities for the mutual aid channels in the bands. The FCC should therefore allocate to the States ultimate coordination responsibilities in all bands. The States, through the Statewide Interoperable Communications Plans required pursuant to the Intelligence Reform and Terrorism Prevention Act of 2004,⁹ can then implement a consistent mutual aid channel policy across the four main public safety bands, coordinating with RPCs and frequency coordinators as appropriate. As part of this planning process, the States should integrate all the mutual aid channels in its jurisdiction within its plan. For mutual aid channels not yet assigned for particular localities, the FCC should treat the particular State as the licensee.

Executive Order 12472 directs the FCC to review the policies and plans of all entities—including the States—licensed by the FCC to provide emergency preparedness communications and to perform such functions as required by law with respect to public safety entities, including the construction of radio stations.¹⁰ Thus, pursuant to EO 12472 and FCC statutory authority under the Communications Act, the FCC should mandate that the States, through their Statewide Interoperable Communications Plans, ensure that every mutual aid channel is assigned and that each assignee—whether a state or local agency—obtains the necessary station licenses from the FCC. As a condition of those licenses, the FCC should require—contingent upon grant funds under the Deficit Reduction Act discussed below or other grant programs—licensees to construct and activate stations necessary to operate mutual aid channels.¹¹

Similarly, pursuant to its authority to modify public safety licenses in the public interest, the FCC should issue a blanket order modifying existing mutual aid channel licenses to require licensees to connect those channels to IP-capable PSAPs or individual IP gateways.¹² The State could determine the most appropriate path to interoperability, either through connection to IP-capable PSAPs or directly to an interoperability network. Existing

⁹ 6 U.S.C. § 194(f).

¹⁰ Executive Order 12472 § 3(h)(1)-(2) (“EO 12472”), as amended by Executive Order 13286, 47 C.F.R. §202 *et seq.*

¹¹ *See generally* 47 U.S.C. § 303(r) (empowering the FCC to “prescribe such restrictions and conditions” as public convenience or necessity requires”).

¹² *See generally* 47 U.S.C. § 316(a)(1) (providing for FCC modification of licenses to promote the public interest with at least thirty days notice). *See also* 47 C.F.R. § 202.3(e)(9) (directing the FCC to develop policies and perform functions with respect to the provision of emergency preparedness telecommunications services, including mandating “the construction, authorization, activation, deactivation, or closing of radio stations, services and facilities”).

equipment certification already requires that public safety radios tune to at least one mutual aid channels for the band in which that radio operates.¹³ By recommending solutions that require activating these previously allocated mutual aid channels and connecting them to a national IP interoperability network, the Panel would assist the FCC in meeting the 2004 Act’s requirement of developing a program that recognizes “the interoperability needs for daily operations and catastrophic events.”¹⁴

In the context of its regular meetings with NTIA on improving spectrum management, the FCC should also encourage NTIA to require federal users to activate federal interoperability channels (162–174 MHz and 406.1–420 MHz) and connect them to IP-capable federal dispatch facilities or IP gateways. The existing FCC-NTIA Memorandum of Understanding anticipates such coordinated interagency action.¹⁵ The MOU directs the FCC and NTIA to engage in “joint spectrum planning with respect to ... the future spectrum requirements for public and private uses, including State and local government public safety agencies” and “the actions necessary to promote the efficient use of the spectrum”.¹⁶ Pursuant to this MOU and EO 12472, the FCC and NTIA should discuss these measures at their next planned meeting.

¹³ See 47 C.F.R. § 90.203(i), (j), 90.547.

¹⁴ 2004 Act, Pub. L. 108-458, §7303(a)(1)(D)(iv).

¹⁵ See *Memorandum of Understanding Between the FCC and NTIA* (Jan. 31, 2003) (“MOU”).

¹⁶ See *id.* §IV (1)(d); 47 U.S.C. § 922.

III. AN IP-BASED NETWORK IS THE MOST PRACTICAL, COST-EFFICIENT, AND QUICKLY-DEPLOYABLE SOLUTION FOR INTEROPERABLE COMMUNICATIONS DURING A DISASTER

M/A-COM urges the Panel to advise the FCC to take action in support of a unified, secure, and reliable national IP-based interoperability network for communications during a disaster. For its part, the FCC should require new and existing public safety licensees, subject to grant funding, to activate their assigned mutual aid channels, connect them to IP-capable PSAPs or IP gateways, for use over a national IP network as it becomes operational. The FCC should encourage the Department of Homeland Security (“DHS”) to deploy a national IP-based interoperability network to which statewide public safety networks, including mutual aid channels, could connect. Federal interoperability channels should also connect to this IP-based network. Such a network would employ IP-based interoperability technology that many innovative public safety agencies in communities across the nation already use,¹⁷ and that is widely available from several competing vendors.

¹⁷ See, e.g., Press Release, New York State Chief Information Officer, *Statewide Emergency Network Project Set to Begin* (September 22, 2005) (announcing a statewide interoperable communications network for first responders) available at http://www.cio.state.ny.us/CIO_PressRelease_SWN.htm; Toni Edwards Finely, *A Different Approach: Interoperability in Pennsylvania*, Public Safety Communications Magazine, Mar. 2003 (describing the interoperable communications network used by four counties surrounding Three Mile Island); Press Release, M/A-COM Wireless, *M/A-COM’s Network First Selected to Provide Interoperable Public Safety Communications for Maryland’s Eastern Shore*, (Mar. 4, 2004) available at http://www.macom.com/macom_prodnews.asp?ID=629 (detailing the Maryland Eastern Shore Interoperable Network used by first responders in nine separate counties); Press Release, M/A-COM Wireless, *M/A-COM Awarded \$11 Million Land Mobile Radio Communications Contract from the Army for the National Capital Region* (Sept. 22, 2003) available at <http://www.macom-wireless.com/news/pressdetail.asp?id=55> (detailing the interoperable communications network used by army installations around Washington, DC); James Careless, *Denver Picks Network First*, Law and Order: The Magazine for Police, Vol. 53 No. 8 (Aug. 2005), available at www.macom-wireless.com/news/Law_Aug05_pg76.pdf (describing the interoperable communications

A federal IP network could connect existing public safety radio systems across regions, regardless of the type of system, frequency, or channel-size used, to mutual aid and federal interoperability channels.¹⁸ IP gateways can convert signals from any radio or communication device to IP-packets, transmit those packets across a secure IP network—not the public Internet—and convert the IP-packets back to analog signals for reception over legacy radios. For communications sent to newer digital radios, the IP-converted signal would remain in the original digital format. Thus, regardless of the frequency or size of the channel on which that device is operating, public safety agencies could use their legacy systems to interoperate with other emergency personnel in a disaster, as the need arises. By enabling public safety providers to use their existing radio systems for their entire useful life, rather than forcing premature retirement of such systems before budget cycles permit replacement, an IP-based interoperability network complies with Congress’s recognition of the importance of “the value, life cycle, and technical capabilities of existing

network aiding police officers, firefighters, and paramedics in the Denver area); *CLEMIS: Public Safety Radio Communications System* (January 18, 2002) available at <http://www.oakgov.com/radio> (describing the interoperable communications network used by Oakland County, Michigan first responders); Press Release, M/A-COM Wireless, *M/A-COM’s OpenSky Network Accepted and Deployed by Central Arizona Project* (Mar. 22, 2005) (announcing interoperable communications network aiding employees along a 336-mile aqueduct); Jim McKay, *Intact Amid Chaos: Florida Statewide Radio System Keeps Emergency Operations Running Despite Hurricanes*, *Government Technology*, Vol. 18 Issue 3 (Mar. 2005), available at <http://www.govtech.net/magazine/story.php?id=93226&issue=3:2005> (describing the success of Florida’s Statewide Law Enforcement Radio Network during Hurricanes).

¹⁸ Indeed, such a system perfectly realizes the National Incident Management System (“NIMS”), which provides that “[s]ystems must be able to work together and should not interfere with one another if the multiple jurisdictions, organizations, and functions that come together under the NIMS are to be effective in domestic incident management.” Department of Homeland Security, *National Incident Management System*, at 55 (Mar. 1, 2004).

communications infrastructure” as outlined in the 2004 Intelligence Reform and Terrorism Prevention Act.¹⁹

By ensuring equipment flexibility, an IP-based interoperability network would also respond to the “unique needs of small, rural communities,”²⁰ which often lack the resources to purchase new digital communications equipment, such as Project 25 (“P25”) handsets or other 700 MHz-capable systems. An IP-based network would allow such smaller entities to interoperate with public safety entities that may have already acquired digital radios. At the same time, public safety agencies that have already invested in P25 or other 700 MHz radios, for instance, could use those radios to interoperate with entities that have not yet made such investments. Since newer digital radios could connect directly to an IP network, an immediate IP interoperability network neither disrupts this replacement cycle nor discourages the purchase of new radios.

Moreover, although P25-compliant handsets operating in the same band are intended to interoperate with each other, they do not solve the problem of communicating with the many non-P25 systems currently used by numerous public safety agencies.²¹ Simply put, absent an IP interoperability network, P25 radios cannot provide interoperability with non-P25 radio systems operating in other bands, whereas an IP network provides the

¹⁹ 2004 *Intelligence Reform and Terrorism Prevention Act*, Pub. L. 108-458, § 7303(a)(1)(D)(i) (“2004 Act”). The 2004 Act requires the Secretary of Homeland Security to find short and long term solutions for both daily operations and those performed during a catastrophe using “flexible and open architectures” and, where possible, “technologies that currently are available.” Pub. L. 108-458, § 7303(a)(1)(E).

²⁰ 2004 Act, Pub. L. 108-458, § 7303(a)(1)(D)(iii).

²¹ One industry estimate notes that only approximately 6 percent of first responder radios in use today are digital. See *The Worldwide Market for Licensed Mobile Radio*, IMS Research (November 2005).

interoperability link between P25 radio systems and other systems. Typically, public safety agencies replace 10 percent of radio plant annually, thus nationwide replacement of current systems with standards-based radios will require several years and several billions of dollars.²² By contrast, the IP-based network recommended here could provide true, near-term interoperability across multiple frequencies for a fraction of the cost of handset and station replacement.

A national interoperability network is not, however, a mere temporary fix. Rather, it is a fully scalable solution that would connect existing and future public safety systems, including P25 handsets and systems planned for the 700 MHz public safety band, through the use of software upgrades to convert existing analog communications to IP so that local first responder commanders can talk through the network to each other and to visiting emergency responder commanders from remote jurisdictions.

In addition to increasing interoperability, IP-based networks can be designed for resiliency and to prevent any single point of failure problems. For example, redundant network operation centers can be located in geographically diverse areas. If one network operation center becomes inoperable, traffic is automatically routed to a redundant center possessing full network control capabilities. Moreover, certain routing topologies can ensure that one compromised node will not debilitate the entire network. Examples include mesh and ring topologies. In a mesh topology, every sub-network, or node, in the IP interoperability network is connected to every other node. This topology offers superior

²² See generally *Presentation of Dr. David Boyd and Dereck Orr, SAFECOM: Improving Public Safety Wireless Communications and Interoperability* (Mar. 17, 2004), available at www.interoperability.publicsafety.virginia.gov/Library/PDFs/SAFECOM-ImprovingWirelessComms.pdf

redundancy. In a ring topology, every node is connected to at least one other node. With this structure, a backup traffic route exists to overcome any one-node failure. Such is the nature of IP, which was originally designed for use during wide-scale disasters.

As Katrina again reminded the nation, near-term first responder interoperability is our national priority. As such, this Panel should encourage technology that enables the greatest number of first responder agencies to interoperate as quickly as possible and at the lowest cost. Clearly, an IP-based interoperability network provides the most practical near-term solution to the nation's public safety interoperability crisis.

IV. FEDERAL FUNDS ARE AVAILABLE TO HELP DEPLOY A NATIONAL IP-BASED INTEROPERABILITY NETWORK FOR DISASTER RELIEF

Working together, the federal government, the States, the public safety community, and private industry could implement a national interoperability network within two to three years in high risk areas and nationwide in four to five years at a cost of approximately \$1.25 billion. At their discretion, State and local public safety entities could offset much of that cost through grants issued pursuant to the Deficit Reduction Act ("the Act") for interoperability systems. Specifically, Section 3006 of the Act provides \$1 billion to "assist public safety agencies in the acquisition of, deployment of, or training for the use of interoperable communications systems that utilize, or enable interoperability with communications systems that can utilize, reallocated public safety spectrum."²³ Operational mutual aid channels connected to IP portals (whether through IP-capable PSAPs or separate IP gateways) would certainly meet these statutory grant criteria.

²³ *Deficit Reduction Act of 2005*, Pub. L. 109-171, §3006.

The use of such funds to construct mutual aid channels and connect them to IP-capable PSAPs or individual IP gateways is also consistent with the Act's Conference Report, which states that the funding is designated "to help ensure interoperability for our nation's first responders" and that NTIA must administer the grant program consistent with the recommended guidance from DHS' SAFECOM and Preparedness Directorate.²⁴ Congress established SAFECOM's mandate through the 2004 Act, requiring DHS to consult with NTIA and the FCC to create a program to enhance interoperable communications at all levels of government—federal, state, local, and tribal—that would in part "encourage the development and implementation of flexible and open architectures incorporating, where possible, technologies that currently are commercially available, with appropriate levels of security, for short-term and long-term solutions to public safety communications interoperability."²⁵ IP meets these criteria perfectly.

The Assistant Secretary must also award funds consistent with the National Preparedness Goal, which states that the National Priority is to "[s]trengthen interoperable communications capabilities across the Nation to enable personnel from different disciplines and jurisdictions to communicate effectively during major events."²⁶ An expedient way to accomplish that goal is to connect the existing systems of those personnel through an IP network.

Expediency is critical. The House Energy & Commerce and Senate Commerce Committees provided for these funds in the aftermath of Hurricane Katrina and amid

²⁴ H.R. Rep. No. 109-362, at 203 (2005).

²⁵ 2004 Act, Pub. L. 108-458, §7303(a)(1)(E).

policymaker calls to enhance interoperability before future disasters ensue.²⁷ As mentioned, IP interoperability technology is already used by many first responders today and currently allows existing systems to interoperate with IP-capable mutual aid channels.²⁸ These systems can interoperate with 700 MHz systems where and when available. Thus, installing the necessary transmission equipment to make mutual aid and federal interoperability channels operational and connecting them to IP gateways or IP-enabled dispatch centers is an affordable and near-term solution to first responder communications interoperability.

The FCC could further ensure rapid implementation by establishing deadlines by which States must complete their frequency coordination and public safety entities install the necessary transmission and IP connectivity equipment and activate their mutual aid channels. At the same time, building a national IP backbone, at the additional initial cost of approximately \$750 million, capable of connecting all first responders channels, including

²⁶ Department of Homeland Security, *National Preparedness Goal (Draft)*, § 4.5 (issued Dec. 2005).

²⁷ *See Communications in a Disaster: Hearing before the Senate Comm. on Commerce, Science, & Transportation* (2005) (statement of Sen. Inouye, Senate Commerce, Science, & Transportation Committee), available at http://commerce.senate.gov/hearings/testimony.cfm?id=1618&wit_id=3969 (“We expected so much more four years after the September 11 tragedy. Yet, here we are today and next week, asking many of the same questions that we asked then...In my view, the time for talk is over. The inability to effectively communicate during major disasters costs lives. We simply cannot repeat these failures.”); *see also Public Safety Communications from 9/11 to Katrina: Hearing before the Subcommittee on Telecommunications and the Internet of the House Comm. On Energy and Commerce* (2005) (statement of Rep. Upton, House Committee On Energy and Commerce Chairman), available at http://energycommerce.house.gov/108/hearings/09292005Hearing1648/Upton_Statement.pdf (“We cannot sit back for another natural disaster or terrorist attack to strike. It’s been 4 years since the attacks of 9-11, and as Katrina made us all acutely aware, sadly, we are far from where we need to be.”)

²⁸ *See e.g.*, <http://eits.myflorida.com/io/>

mutual aid and daily operational channels, is a long-term interoperability solution.²⁹

As noted above, a national IP network is consistent with the SAFECOM grant guidance, which recommends, for instance, that when public safety entities procure equipment, they should use a standards-based approach to begin migration to multi-jurisdictional and multi-disciplinary interoperability.³⁰ IP is not only standardized, but global. Moreover, standards already exist for mission critical IP-based voice/data communications for talk groups, preemption, encryption, scalability, security and other public safety needs—criteria recommended in the DHS Guidance. SAFECOM Guidance also encourages that XML standards be used for data-related systems.³¹ An IP-based interoperability network would use such standards.

To ensure interoperability among new and existing communications systems, SAFECOM Guidance also recommends that “all new voice systems should be compatible with the Project 25 (P25) suite of standards.”³² An IP network that interconnects all systems certainly complies with that suggestion. Moreover, a system capable of connecting P25

²⁹ Under EO 12472, the Director of OMB, in consultation with the National Security Council, the Homeland Security Council, and the NCS, will prescribe procedures for reviewing the financing of the NCS within the budgetary process and for preparation of budget estimates. The President directs DHS, as the Executive Agent of the NCS, to plan for and provide, operate and maintain telecommunications services and facilities, as part of its National Emergency Management System, adequate to support its assigned emergency management responsibilities, and to advise and assist State and local governments in developing plans and procedures for satisfying State and local emergency preparedness telecommunications requirements. EO 12472 § 3(b)(1)-(2).

³⁰ Department of Homeland Security, SAFECOM Program, *Recommended Federal Grant Guidance: Public Safety Communications & Interoperability Grants*, at 3 (Dec. 2005) (“SAFECOM Grant Guidance”).

³¹ *Id.* at 8.

³² *Id.* at 3.

radios directly to an IP network so as to render those radios interoperable with other non-P25 radios is inherently “compatible” with the P25 suite of standards. In the Conference Report to the Act, Congressional Managers note that there is a diverse array of technological and engineering solutions that enable interoperable communications systems.³³ Thus, grants under the Deficit Reduction Act are not limited to P25 radios, which do not interoperate with existing radio systems absent an IP interoperability network. Moreover, DHS’s SAFECOM Guidance states, “Funding requests by agencies to replace or add radio equipment to an existing non-P25 system will be considered if there is an explanation as to how their radio selection will allow for improving interoperability or eventual migration to interoperable systems. *This guidance does not preclude funding of non-P25 equipment when there are compelling reasons for using other solutions.*”³⁴

DHS’s SAFECOM Guidance also encourages the use of scalable systems, so that the system can be used locally between agencies and jurisdictions, statewide, and even at a multi-state or national level.³⁵ An IP-based network that provides interoperability between disparate radio systems, operating in different frequencies and with different radios, inherently meets this goal. Given the affordability of commercially available IP equipment, and the open and flexible architecture of IP, IP is the most scalable technology for improving first responder interoperability.

In sum, the construction of mutual aid channels and connection of those channels to an IP network allows interoperability with equipment using 700 MHz channels and is, thus,

³³ H.R. Rep. No. 109-362, at 203 (2005).

³⁴ SAFECOM Grant Guidance, at 4 (emphasis added).

³⁵ *Id.* at 8.

consistent with the 2004 Act, the Deficit Reduction Act, its Conference Report, and SAFECOM Guidance.

CONCLUSION

For the reasons set forth above and in M/A-COM's initial comments, M/A-COM asks the Panel to recommend that the FCC develop a consistent mutual aid channel policy coordinated at the state level, require States to coordinate the assignment, construction and use of mutual aid channels, and modify existing public safety licenses and condition new licenses to require, at the State's discretion and subject to grant funding, connection of mutual aid channels to IP-capable PSAPs or to IP gateways for operation over an IP-based interoperability network for communications during a disaster.

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